



# Seneca Lake **PURE WATERS** Association

## **BLOOM WATCH UPDATE**



### SHORELINE MONITORING SCORECARD

Observation Dates: Thru 8/9/2020

% Zones Monitored: 65%

**Suspicious Blooms: 0**

**Confirmed Blooms: 0**

### 2020 HABs Weekly Zone Surveys Continue – No Blooms Yet

Week 1 saw the majority of our volunteers out and searching for HABs. I am happy to report that none were spotted from 8/2 through 8/9. Conditions were favorable during much of the week, but it appears the Cyanobacteria are not ready to bloom here on Seneca Lake.

Canandaigua Lake continues to report light, scattered blooms in shallow, still water. Cayuga Lake has been reporting blooms, many samples testing as “high toxins”, since early July. Keuka has not reported a bloom in the last week.

On Seneca Lake we still see large mats of Cladophora decomposing on or near shore...messy and often with a strong odor.

One of the mysteries about HABs is where are the Cyanobacteria when not “in bloom”? Another question is whether the population must build to a “critical mass” before blooms can occur. This week’s feature article, from Lisa Cleckner, Director of the Finger Lakes Institute, describes a research effort designed to shed some light on these and other questions.

## **New Research Project Analyzes Harmful Algal Bloom (HAB) DNA**

The Finger Lakes Institute at Hobart and William Smith Colleges is partnering with Cornell University on a new research project to assess the genetic information of harmful algal blooms (HABs) in the Finger Lakes.

Called “Mobile toolkit for rapid in-field screening of freshwater Harmful Algal Blooms” the project is piloting the use of field handheld qPCR<sup>1</sup> devices to screen cyanobacteria, the microorganisms also called blue-green algae that produce HABs in freshwater, for specific genes.

The New York State Water Resources Institute is funding the project. Cornell Professor Ruth Richardson is teaming up with FLI’s Lisa Cleckner to lead the project.

This project is also enlisting citizen scientists to use field microscopes to distinguish many cyanobacteria colony types. These results will be correlated with concentrations of microcystin, a dangerous liver toxin found in HABs. The FLI recently began microcystin analysis as part of its Baker Water Quality Laboratory.

A variety of samples are being collected including traditional blooms as well as weekly water samples regardless of whether blooms are observed or not. Current sampling locations are on Cayuga, Canandaigua, and Seneca lakes. The sites capture two water column samples, one from the surface down to 0.5 meters (1.6 feet) and the other sampling the bottom 0.5 meters (1.6 feet). This bottom sample is just above the sediments, since sediments have been shown to be the resting location for HAB organisms.

Though the main benefit of this work is a validation of rapid screening tools and possible bloom warning models, the data collected will provide ecological insights into HAB community composition, in-lake dynamics, and the toxins that cyanobacteria produce. This will be accomplished by comparing cyanobacterial communities, which include non-photosynthetic bacteria, before, during, and after “bloom” season with traditional HAB assessments.

Overall, this work addresses the need for rapid field-appropriate methods to screen current blooms for cyanotoxins and could also be used to help predict oncoming toxic blooms.

Project partners include the Cayuga Lake Watershed Network, the Community Science Institute, Canandaigua Lake Watershed Association, Canandaigua Lake Watershed Council, and Seneca Lake Pure Waters Association.

The photo below is the sampling apparatus. All PVC construction, it consists of a check valve at the bottom, the 50 cm sample section, and upper handle with the cord connected to the check valve. Holes above the sample section allow water to escape when taking the bottom half meter sample. Pulling the cord pulls the check valve open and releases the water into the pitcher shown. About 3 samples are required to fill the 1-liter sample bottle.

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<sup>1</sup> qPCR stands for quantitative polymerase chain reaction, which is a technology for measuring DNA that uses a polymerase chain reaction that can increase a region of DNA by making copies of it.



### **What do blooms look like?**

We will provide some photos in each Bloom Watch to help everyone better identify blooms.



This week's photos are from Canandaigua Lake last week. These are typical early season blooms—light streaking and shallow water. The right photo is very light.

Do not put your hands in a bloom. Blooms are very 2-dimensional and don't stick together like seaweed or filamentous algae does. It is mainly green, but can take on some other colors. It can be streaky, blotches, dots, or scum in appearance.

**What is one of the best things I can do to stay on top of this situation?**

Visit the Seneca Lake Pure Waters website frequently at [senecalake.org](http://senecalake.org). It will have the most current information. In addition, if you live on the lake, it might be a good idea to check with neighbors and determine who your local Shoreline Survey Volunteer is. All of our volunteers are a wealth of information and a good person to know. Our 120+ volunteers are well distributed around the lake and many residents have regular conversations with our volunteers as they survey our shores on a regular basis.

If not a Pure Waters member, consider joining. We can use your support and help as we work hard to accomplish our mission of Preserving, Protecting and Promoting Seneca Lake Water Quality. Click [here](#) if you would like to become a member now. Those who need to renew and know their login information can click [here](#) to renew.

I look forward to keeping you up to date as we progress through our HABs/Cyanobacteria

season. Enjoy the rest of your summer!!

Bill Roege

HABs Director

Seneca Lake Pure Waters Association

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## **HAB FACTS: What you need to know!**

Exposure to any cyanobacteria HABs can cause health effects in people and animals when water with blooms is touched, swallowed, or when airborne droplets are inhaled. This is true regardless of toxin levels; some blue-green algae produce toxins, while others do not. Exposure to blooms and toxins can cause symptoms such as diarrhea, nausea or vomiting; skin, eye or throat irritation and allergic reactions or breathing difficulties.

Because blue-green algal bloom conditions change rapidly over time, the best prevention is to take steps to avoid waters with visible blooms:

- People, pets, and livestock should avoid areas with blooms or surface scums, or water that is noticeably discolored.
- Avoid blooms when swimming, boating, fishing, and don't eat fish caught from areas of water with blooms.
- If you or your pets are exposed to blue-green algal blooms, stop using the water and rinse off with clean water.
- Consider medical attention for people and animals if symptoms such as diarrhea, nausea, or vomiting; skin, eye, or throat irritation; and allergic reactions or breathing difficulties occur after contact with surface waters with blooms.
- Never drink untreated surface water. Even if you treat it in your home with water filtration, chlorine, ultraviolet (UV) light, or other treatment; it's still not protected from blue-green algae and toxins.
- If you would like to see where HABs are occurring in NY State, visit the DEC Website at <https://www.dec.ny.gov/chemical/77118.html>. Their map is [here](#).

